Amendments to the Specification:

Please replace the paragraph beginning at page 6, line 11, with the following amended paragraph:

-- Thallium atoms have such a simple electronic structure that only three energy states exist below energy of 30,000 cm^{-1}, such as the ground state (6 $^2P_{1/2}$: 0 cm^{-1}), metastable state (6 $^2P_{3/2}$: 7,793 cm^{-1}), and the excited state (7 $^2S_{1/2}$: 26,447.6 cm^{-1}). And thallium atoms have several advantages for efficient optical pumping. These are:

(a) large electric dipole moment of the transition between 6 $^2P_{1/2}$ and ~~6~~ ~~$^2S_{1/2}$~~ 7 $^2S_{1/2}$

(b) very short level lifetime of ~~6~~ ~~$^2S_{1/2}$~~ 7 $^2S_{1/2}$ (7.5 nsec)

(c) branching ratio of the transition between ~~6~~ ~~$^2S_{1/2}$~~ 7 $^2S_{1/2}$ and the metastable state is bigger than that of the transition between ~~6~~ ~~$^2S_{1/2}$~~ 7 $^2S_{1/2}$ and the ground state.

Hence, very efficient pumping of thallium atoms into the metastable state can be easily achieved if a CW laser frequency (about 378 nm in the wavelength) is resonant to the transition line of 6 $^2P_{1/2}$ and ~~6~~ ~~$^2S_{1/2}$~~ 7 $^2S_{1/2}$. Because the metastable state population of thallium atoms is lower than 10^{-3} when thallium is heated at temperature to generate an atomic beam, their initial population does not affect the isotope selectivity at this temperature range. --